Remarks:

This amendment D is provided in response to the Office Action of August 26, 2003 and to correct minor errors of Amendment C, dated June 11, 2003.

General Summary of Amendment D

Specification:

The paragraph starting on line 7 page 5 of the original application, describing the invention of Ueda '931 is modified to correct several minor errors, and provide a more concise description of the limitations of this invention.

The paragraph starting on line 35 page 17 of the original application and subsequently amended by Amendment C to both describe a variant of the preferred embodiment and show an improved method of determining the heights of the bindings and shoe supporting surfaces, as shown in new fig. 8 of amendment C, is modified to delete the description of the revised method of determining the heights of both bindings and shoe supporting surfaces. This description of the revised method of height determination is moved to form a new paragraph immediately following the paragraph starting on line 2 of page 17, which is also revised in this amendment.

Drawings:

New figure 8 is provided per the allowance of the proposed changes presented in Amendment C.

New figure 7 of same sheet is amended to add three cross hatchings showing section 7-7 sections which were erroneously omitted in the original figure 7.

Claims:

Claim 30 is amended to correct an error of syntax, to remove references to external objects that are not part of the invention, and to restrict recitations of resulting functionality to reference the structure and operation of the pedal itself.

Claims 31-34 remain dependent on claim 30 and are amended to remain consistent to amended recitations of claim 30, and are simplified for conciseness.

Claims 35 remains unchanged.

Claim 36 was previously canceled.

Claim 37 is canceled by this amendment.

Claims 43-54 are new.

Applicants Response to the Detailed Action-Response to Arguments (Numbered Item 4)

Claim 30 is amended to correct a significant grammatical error of conjunction which can lead to a misinterpretation of the scope of claim 30. In particular, original claim 30 recites a relative height variability linkage that "either" provides clipless binding operation, "or" provides unbound operation, with no further grammatical qualification. This "either/or" grammatical construction was intended to provide for the linkage to provide both clipless binding mode and unbound mode on the same side of the pedal, but not simultaneously. This intention is retained, and is obvious from the specification. However, this form of "either/or" grammatical construction could possibly be interpreted to intend that the linkage provide only clipless binding mode, or provide only unbound mode, but not necessarily both, at separate times, on each side of the pedal. Such an adverse interpretation finds no support in the specification, and of course, would not be new, nevertheless the claim is amended to require that the linkage (means) explicitly provide two pedal states on each side of the pedal having a clipless shoe binding present, one state where the bindings have the same or less height than their corresponding shoe supporting surfaces (for unbound mode) and another state where the bindings have substantially greater height than their corresponding shoe supporting surfaces (for clipless binding mode). No further qualification regarding a necessary condition of nonsimultaneity of these two states is needed, as the definitions of pedal states (providing for unbound mode and clipless binding mode) are now defined solely by the positions of bindings and shoe supporting surfaces relative to each other, rather than by resulting operational functionality, thus making the condition of simultaneity impossible.

Applicant's Response to the Detailed action-Claim Rejections-35 USC § 102 (Numbered Item 2)

Claims 30-37 were rejected under 35 USC § 102 as being anticipated by the prior art of Ueda U.S. Patent No. 5,784,930 (Ueda '930).

The prior art does not teach a pedal providing support for a shoe in a cleat unattached manner

Applicant's interpretation of the rejection of claim 30 under 35 USC §102, per the telephone conversation of Sept. 10, 2003 was based solely upon the error in syntax as described in the response above to Item 4 of the Detailed Action. However, rectification of this error merely renders claim 30 essentially identical to the citation of the prior art of Ueda '930 (in what Applicant assumes is the language of original claim 30). The citation of the Office Action states that Ueda '930 discloses, among other things:

> "...a tread cage **5** having shoe supporting surfaces thereon; and a relative height variability linking(not numbered) varying the relative height between said cleat engagement mechanisms to be sufficiently level with said shoe supporting surfaces so as to support a sole of a shoe without attachment of a cleat thereon to said cleat engagement mechanisms, or to hold..."

Ueda '930 does not show, nor describe a shoe supported on the pedal without attachment of the cleat with the binding. The only reference made in Ueda '930 to the pedal being in a cleat unattached state, makes no mention of the shoe being simultaneously supported, and is found in lines 35-43, column 4:

> "Operation of the pedal will now be described with reference to figs 5A and 5B. In a state in which the shoe is not attached to the pedal, **1**, as shown in fig. 5A, the front cleat engagement member **30** of the linking member **4** is biased by the helical spring **26** and is positioned above the tread surface **49** of the tread cage **5**, while the rear cleat engagement member **31** is positioned be below tread cage **5**. When the shoe **21** is to be attached to the pedal **1**, the tip of shoe sole...."

The only shoe supporting surface(s) on tread cage **5** that are able to make contact with a typical shoe without attachment of the cleat to the cleat engaging mechanisms (either under shoe pedaling force or only under initial shoe contact), is brace member **55**. The abstract of the invention clearly identifies the novelty of the invention to be the addition, to a clipless binding type pedal, of a brace member for the purpose of acting as a stabilizing surface for eliminating looseness between a shoe and a pedal when operating with the cleat attached to

the binding as described in the last two sentences of the abstract:

"A brace member is positioned behind the rear cleat engaging member such that the brace member has a height that is greater than or equal to the height of a rear cleat engaging member. The brace member acts as a stable surface for eliminating looseness between the pedal and the shoe".

Brace member **55** is described as supporting the sole of a shoe in column 4 , lines 25-28 :

"If brace member **55** such as this is provided to the rear of the cleat engagement member **31**, then the shoe sole **27** will be supported by brace member **55**, and the looseness of the shoe to the right and the left will be suppressed."

Again, it is clear that this recitation of shoe support by a shoe supporting surface is directed to a cleat engaged state; in unbound, unattached operation, the foot is by definition, loose upon the pedal and the leg is free to move to the right and the left. The only pedal state shown in Ueda '930 where the shoe makes contact with the tread surface **49**, or brace member **55** is with the cleat attached to both cleat engaging mechanisms in fig 5B.

Regardless of the disclosure of Ueda '930, we can ask if it is possible for a shoe to be supported in an unattached manner on the pedal of Ueda '930. The only shoe sole shape which can make contact with brace member **55** and the front edge of tread surface **49** of tread cage **5** is a shoe sole being substantially concave. Such a shoe sole shape is contrary to the natural convex shape of the plantar surface of the forefoot which must be located substantially over the spindle for safe, comfortable, and effective pedaling. No shoes for walking or cycling are made in a concave shape, and only a shoe having an extremely compliant sole could conceivably take such a shape under pedaling pressure. Such a compliant sole taking such a concave shape under pedaling pressure would quickly become uncomfortable and could lead to injury over time, or under sudden pressure because the shoe sole would still be primarily supported on cleat engaging member **30**, as this feature contacts the sole first and lies closest to the ball of the foot through which pedaling force is primarily transmitted. Furthermore, no shoes having such a compliant sole are made to accept a cycling cleat; in particular the relatively small cleat shown in both Ueda '930 and the present invention. As such the invention of Ueda '930 cannot provide any significant improvement in unbound pedaling over a compact pedal providing only clipless binding operation.

Claim 30 is now limited to functional recitations of structure, not to resulting functionality in combination with indefinite external objects

Original claim 30 was written in a means plus function manner which claimed a resulting novel functionality of the pedal in combination with indefinite external objects, namely, a generic shoe and cleat system which are not precisely defined.

To overcome this deficiency, claim 30 has been rewritten to eliminate all references to the resulting functionality of the the invention. The invention is now claimed only in terms of its design, configuration and operation that are limited to the pedal itself, and its relation to precisely definable simple abstract geometric constructions. These new structural recitations and their relation to the geometrical constructions are sufficient to define a pedal having a resulting novel functionality which is not obvious from the prior art.

Amended claim 30 now recites a pedal having a relative height variability means providing for cleat engagement mechanisms (bindings) having a height generally the same as or less than than the height of their corresponding shoe supporting surfaces, these heights being measured in a definite manner that most closely simulates the form, position, and force of a typical cycling shoe in proper pedaling position (thusly providing for shoe supporting surfaces to primarily or fully support a shoe without attachment of the cleat with the bindings), and also providing for bindings to have a height that is substantially greater than their corresponding shoe supporting surfaces, as measured in the same definite manner (thusly allowing the cleats to attach to the bindings). All recitations of resulting novel functionality are eliminated. The definite manner of height measurement of bindings and shoe supporting surfaces in claim 30 provide the most accurate and relevant measure of height determination that enables one to distinguish between a pedal state that can provide true unbound pedaling (with the cleat unattached, and the shoe sole stably and securely supported primarily or fully on a shoe supporting surface), and an alternative state that can provide clipless binding operation (with the cleat attached to the binding). This is because the first imaginary cylindrical gauge surface, so located with its axis parallel to the spindle axis, and tangent to the shoe supporting surface a minimum distance from the spindle axis is highly representative of typical cycling shoes having a curved rigid forefoot sole portion. In addition for shoes not having a cleat and typically having a more compliant sole, the cylindrical gauge surface simulates the resulting shape of the forefoot portion of the sole under pedaling foot pressure, this pressure being highest in the area immediately under the ball of the foot, which is located over the spindle when in proper pedaling position.

The definite method of height determination and criterion for differentiation between the two modes of operation can be easily applied to any possible equivalent of the present invention, including the pedal of Ueda '930. When the height definitions of amended claim 30 are applied to the pedal of Ueda '930, it becomes clear that Ueda '930 does not show, nor teach a pedal having bindings that have a height generally the same as or less than the height of their corresponding shoe supporting surfaces on the same side of the pedal. Instead, the pedal of Ueda '930 shows a pedal having bindings that are substantially higher than their corresponding shoe supporting surfaces, in all possible configurations of the bindings relative to the shoe supporting surfaces. The invention of Ueda '930 does not teach a pedal having a state where the bindings have heights that are generally the same as or less than the heights of their corresponding shoe supporting surfaces. Ueda shows a relative height variability means that provides only for rotation of the bindings about the pedal spindle axis, relative to the shoe supporting surfaces. No drawing shows a pedal state where the height of front cleat engagement members 30 are generally the same as or less than the heights of their corresponding shoe supporting surfaces, as measured by the method of claim 30. If the pedal of Ueda '930 was modified to provide sufficient further relative rotation of the bindings and shoe supporting surfaces, with respect to each other, to place front cleat engagement member **30** lower than the cylindrical surface as defined in claim 30, tangent to tread cage **5**, rear cleat engagement member **31** would rise further above the aforementioned cylindrical surface. As a result, the minimum height of the second cylindrical surface tangent to the bindings will always be substantially greater than the height of the first cylindrical surface, no matter how much additional rotation is achieved. If the invention of Ueda '930 was modified to have a state whereby binding heights were generally the same as or less than the heights of their corresponding shoe supporting surfaces, as measured by the method of claim 30, cleat engagement member **30** would not be able to engage and attach to a sole recessed cleat. This can easily be seen in figure 5B, where the cleat is shown engaged with both front and rear cleat engaging mechanisms and the shoe sole is shown fully in contact with tread cage **5**. If cleat engagement member **30** was configured to be lower than shown, only a non-sole recessed cleat could attach to the bindings. However, the present invention is directed towards providing novel dual mode functionality for use primarily with shoes having sole recessed cleats. As such the prior art of Ueda '930 does not anticipate the present invention, and all embodiments of the present invention in this application are defined distinctly over the

prior art. As such, the rejection of previous claim 30 under 35 USC § 102(b) is overcome. Furthermore, the prior art of Ueda '930 does not teach an obvious method for achieving the two distinct pedal states of claim 30 because the pedal of Ueda '930 uses a relative height variability means that consists of simply providing relative rotational variability between bindings and unbound shoe supporting surfaces. The present invention uses either a parallelogram linkage or a scissors type linkage connecting bindings and unbound shoe supporting surfaces, which is substantially different and not a simple extension of relative rotational variability linkage of Ueda '930. Thus the present invention, as claimed in claim 30, also satisfies the requirements of USC § 103 as being non-obvious over the prior art. Applicant hereby submits that the rejection of claim 30 is overcome and requests reconsideration and allowance of claim 30 of this amendment.

Claims 31-37 are dependent on claim 30 and were rejected as being anticipated by the prior art of Ueda '930. The rejections of claims 31-37 are based solely on the limitations of claim 30, which Applicant submits are now overcome. Furthermore, claims 36 and 37 are now canceled. Claims 31-34 are amended to remain consistent with claim 30, and claim 35 remains unchanged, not needing amendment to remain consistent with the limitations of claim 30. Thus Applicant submits that claims 31-35 now distinguish the present invention patentably over the prior art. Applicant hereby requests reconsideration and allowance of claims 31-35.

Remarks regarding other amendments made to the claims

Though all the embodiments of the invention described show an unbound mode in which no contact between a fully recessed cleat and the binding occurs during unbound mode, slight contact of the cleat on the binding may be acceptable in other foreseeable equivalents, as long as stable and secure support of the shoe sole on the shoe supporting surface is realized. Furthermore, some foreseeable cycling shoe and cleat combinations may provide for the cleat to be sufficiently recessed into the sole whereby the outermost facing surface of the cleat is not level with the shoe sole surface, but inset further within it. Such a cleat and shoe combination is clearly desirable for walking on surfaces that are not flat, and therefore could be stably and safely used in unbound mode on a pedal having bindings which protrude slightly above a corresponding shoe supporting surface. For these reasons claim 30 now recite the relative height variability means to provide a state whereby the bindings have "generally" the same height or less height than the height of their corresponding shoe supporting surfaces.

In claim 30, and in new claims 43 and 49, a limitation is added to require the relative height variability means to provide for both of the two possible pedal states to each be securely held "under significant pedaling shoe force". This limitation is essentially an elaboration of the previous recitation: "relative height variability means for varying and "securely holding" the relative positions of bindings..." which is intended to provide that application of shoe force on the pedal does not change the relative positions of the bindings and shoe supporting surfaces, when they are in either of their two possible relative positions. This limitation was previously left implicit in the recitation "securely holding", as being obvious from the specification. It is is now added for explicitness, and to more distinctly define the invention of claims 30 and 43 over the prior art, in particular the prior art of Ueda '930, and the pedal of Takahama & Ueda, U.S. Patent No. 6,453,771 (Takahama and Ueda '771), where the application of any significant shoe force on the pedal is intended to change the relative positions of the bindings and shoe supporting surfaces. The pedal of Ueda '930 does not provide, nor intend for the bindings to be level with or lower than their corresponding "shoe supporting surfaces" , as shown in figs 5A and 5B, and describe in col. 4 lines 36-40, as quoted above in the Response to Claim Rejections, and in col. 5 lines 10-15:

> "Also, even if a tread cage **5** having a relatively wide tread surface **49** is positioned around the linking member **4**, since the tread cage **5** and the linking member **4** rotate relative to each other, the front cleat engaging member **30** can always be positioned above the tread cage **5**, and the engagement of the cleat **22** is easy."

and furthermore, does not provide for the bindings to be held securely in their lowest position relative to their corresponding shoe supporting surfaces under any significant shoe sole or cleat force. Instead the bindings of Ueda '930 are designed to move into a more cleat receptive position (increasing the height of cleat engement member **31**) under sole or cleat pressure on protruding cleat engaging member 30. Similarly, the pedal of Takahama and Ueda '771 has a compliant elastomeric tread cage **28** which deforms under shoe force to allow rear clamping member **72** to protrude above tread cage **28**, enabling cleat attachment to the binding. Furthermore, the pedals of Ueda '930 and Takahama and Ueda '771 cannot be modified to provide a pedal state having bindings level with, or lower than shoe supporting surfaces under significant shoe force, as doing so would disallow cleat engagement and attachment to the binding. In essence, this additional limitation is intended to restrict the definition of a shoe supporting surface to apply only those shoe supporting surfaces that can support at least a majority of the rider's weight or pedaling force, and not those shoe supporting surfaces that are designed only to stabilize a cleat engaged shoe and to deflect away from the riders shoe in order to allow cleat attachment to the binding.

Remarks Regarding Amendments to the Claims in Response to the Suggestions of Examiner of the Telephone Conversation of Sept. 10, 2003

A Planar reference is substituted for the cylindrical reference of claim 30 in new claims 43 to 54

In response to Examiner's suggestion to consider using a planar reference for height determination of bindings and shoe supporting surfaces, and to eliminate references to external objects, Applicant has added new claims 43-54. Claims 43 and 49 are independent and constitute the essence of these planar references. In claim 43, all recitations defining heights of bindings and shoe supporting surfaces are eliminated. Instead, claim 43 recites the relative height variability means to provide "for varying and securely holding, under significant pedaling shoe force, the relative position of each said binding and each said corresponding shoe supporting surface with respect to each other, whereby each said binding has minimal or no intersection with an imaginary plane tangent to each said corresponding shoe supporting surface a minimum distance from said spindle axis and to provide for varying the relative position of each said binding and each said corresponding shoe supporting surface with respect to each other, whereby each said binding substantially intersects an imaginary plane tangent to each said corresponding shoe supporting surface a minimum distance from said spindle axis, in the absence of said binding".

In new claim 43, the recitation of "a plane tangent to each said corresponding shoe supporting surface a minimum distance from said spindle axis" uses a common definition of the word "tangent" which is intended for constructing a plane "physically" tangent, as if the plane was the planar surface of a solid, to each shoe supporting surface in the particular tangent position that locates the plane a minimum distance from the spindle axis, as opposed to an "abstract" geometrical plane, capable of intersecting the shoe supporting surface, that is tangent to the shoe supporting surface at a single location, as in the manner of constructive geometry. New claim 48 utilizes such an abstractly tangent plane by specifying a plane that is tangent to the surface at a specified point, thus disallowing the common definition. A qualification of these tangent planes is made, where required for explicitness, to require them to be located tangent to the shoe supporting surface in the absence of the bindings. This requirement is obvious, but is made for clarity.

A cylindrical gauge surface provides a more consistent and accurate reference for functional differentiation

Nevertheless, the concept of using a cylindrical surface, rather than an imaginary tangent plane, for providing a precisely definable and consistent gauge surface for differentiating the present invention over the prior art is essential for defining all foreseeable, and perhaps many unforeseeable equivalents of the invention over the prior art, and is is retained in claim 30. In particular, the precisely defined cylinder, depicted in revised figure 8, and used as a datum, or gauge surface in claim 30 for the definition of binding and shoe supporting surface heights, is now explicitly recited as an imaginary geometrical construction for a gauging purpose, not as an element of the invention, or a physical element not part of the invention. This cylindrical surface merely constitutes a reasonable abstract equivalent, in both form and position, of the prior art shoe sole shown in figures 3c, 4b, 9, 12a, 12b, 12d. This cylindrical surface is no more or less an external object than a plane, being distinctly constructible in an unambiguous manner for any possible equivalent whose scale is known, using a compass and ruler. Though the scale of a potential equivalent may not be exactly known from its drawing, in fact all known and foreseeable equivalents of the invention, are of a highly similar size and shape. In particular, the cleat shown in the drawings of the present application, is essentially the same cleat shown in figures 4, 5A, and 5B of Ueda '930, and is now an industry wide standard, called an SPD cleat, and can be compared to actual physical specimens to determine scale. Applicant has done this for figures 4, 5A and 5B of Ueda '930, and in fact, these figures are essentially drawn to a scale between 93% to 100% of actual scale. Furthermore, in any infringement proceeding, a physical example of a potentially infringing invention will exist for measurement. Thus the use of a gauge cylindrical surface or gauge cylinder in the claims for defining the present invention patentably over the prior art, presents little difficulty, and should not be objected to.

The cylindrical surface as defined in the specification, and in claim 30, is necessary, not only because it most closely represents a typical shoe interface to a pedal of this type, but also because it provides the most practicable gauge surface for defining all presently foreseeable equivalents of the invention over the prior art. This can best be illustrated by considering the general substitution of a tangent plane for the tangent cylindrical surface. Considering firstly the concave shoe supporting surface **15** of the preferred embodiment, it immediately becomes unclear whether the plane is to be located tangent to the shoe

supporting surface in a physical manner, as if it being the plane surface of a solid, thus touching the shoe supporting surface at two locations, these locations being the fore and aft edges of the shoe supporting surface, or whether it should be located tangent in an abstract geometrical sense, as an imaginary plane that can intersect any solid, touching the shoe supporting surface at a single point, in a geometrically tangent manner, for instance, at the point on the shoe supporting surface that is minimally distant from the spindle axis (or, perhaps some other point). These two differing ways to establish a tangent plane result in two differing heights of the shoe supporting surface. Without further qualification, the tangent plane would be indefinite.

This same lack of clarity is present, but becomes moot for the case of a tangent cylinder having a radius less than that of the shoe supporting surface, as shown in the preferred embodiment. Either the physical gauge cylinder recited in Amendment C as " ...a cylinder... fully impressed against said shoe supporting surface" or the recitation in this amendment D of an "imaginary gauge cylindrical surface tangent to said shoe supporting surface a minimum distance from said spindle axis" will be tangent to the shoe supporting surface in the same location, thus providing a more consistently locatable gauge surface relatively immune to misinterpretation.

Either the aforementioned "physically" tangent plane, or the "abstract" tangent plane used for a gauge surface serve to define both embodiments of the present invention patentably over the prior art, but not to the full extent of the novelty of the invention. For the two possible tangent planes, the bindings either do not intersect, or substantially intersect them, depending on pedal state or mode. This is true in the preferred embodiment, whether the plane is stably tangent at two points, as in the physical manner of a planar solid surface, to the slightly curved shoe supporting surface, or tangent, in a non-physical abstract sense, to the surface at a point on the shoe supporting surface which locates the plane minimally distant to the spindle axis. However, for the shoe supporting surface of the preferred embodiment, only the plane tangent to the concave shoe supporting surface at the point of minimum distance of the shoe supporting surface from the spindle, which essentially locates the plane minimally distant from the spindle, provides for fully differentiating between the two required configurations of the bindings relative to the shoe supporting surfaces that provide the full novel functionality. For a hypothetical variation of the preferred embodiment having bindings being tangent to a plane that is tangent in a physical manner at the fore and aft edges of the concave shoe supporting surface, significant sole or cleat contact on the bindings can occur

when using a shoe having the curved rigid sole shown in the drawings. Depending on the actual curvature and size of the shoe supporting surface, and the curvature and compliance of the shoe sole being used, this contact may be more than a minimum allowable, and could significantly interfere with the ability of the shoe supporting surface to safely and comfortably support such a shoe in unbound mode. The pedal would provide unbound functionality with a compliant shoe sole and clipless binding functionality with a shoe having a rigid curved sole, but might not provide both modes for riders wearing a single shoe type. Such a pedal is still patentable over the prior art, but fails to capture the full novel functionality of the present invention which clearly shows the same rigid curved sole shoe being stably and securely supported only on the wide and textured shoe supporting surface **15** for use in safe and secure unbound mode as well as clipless binding mode. Thus, for the shoe supporting surface of preferred embodiment, the only plane that provides an accurate gauge for defining unbound functionality is a plane abstractly tangent to the shoe supporting surface a minimum distance from the spindle axis. Yet such an abstractly established plane has less physical resemblance to an actual shoe sole supported on the shoe supporting surface than the physically established plane, and is thus a less desirable recitation.

Furthermore, for the alternative embodiment of the present invention having cage type shoe supporting surfaces, construction of either the "physically" tangent plane, or the "abstractly" tangent plane as mentioned above results in a single unique plane. Yet such a plane may have substantially greater height than the sole (or the lowermost surface of a cleat) of either a curved rigid sole shoe, or perhaps the sole portion under the ball of the foot of a compliant, flat soled shoe that deforms into a curved, convex shape under pedaling foot pressure. A hypothetical variation of the alternative embodiment that provided only for the bindings to be tangent to such a plane might be less safe and comfortable to ride in unbound mode than the embodiment shown in figures 11-14, having bindings which are locatable substantially below a plane tangent to the shoe supporting surface. Such a pedal would still represent a significant improvement over the pedal of Ueda '930, in unbound mode for riders wearing essentially flat and or compliant shoe soles not having cleats.

Furthermore, considering the invention of Ueda '930, it may be seen that a plane established physically tangent to the tread cage **5**, as shown in fig. 5A shows a small but significant amount of binding intersection with this plane. There would be substantial intersection of the binding with a cylindrical surface constructed according to claim 30 of this

amendment, which would be similar to the substantial amount of intersection of the binding with the outline of the shoe sole shown in Ueda '930, were it illustrated. Again, only a plane abstractly established tangent to the tread surface **49** of tread cage **5** at the location of minimum distance of the tread surface **49** from the spindle axis would provides an accurate gauge of unbound functionality. In fact, such an abstract plane actually serves to illuminate the fact that the pedal of Ueda '930 can only be used in clipless binding mode with a shoe having a partially recessed sole; where the portion of the sole rearward of the cleat has been removed. It is only under this condition that tread surface **49** of tread cage **5** can possibly provide shoe sole support, as shown in figure 5B.

The recitation of claim 43 for having a pedal state where the binding has "no" intersection with plane physically tangent to the shoe supporting surface presents a difficulty for defining an equivalent having a flat shoe supporting surface. Support for such a flat shoe supporting surface was given on page 21 of the Conclusions Ramifications and Scope section of the original application:

> "The shoe supporting surfaces **15** of the preferred embodiment may be shaped differently than shown, such as flat, rather than curved."

For such a flat shoe supporting surface, a slight amount of binding intersection with a tangent plane may be allowable without interfering with the ability of the shoe supporting surface to safely and securely and comfortably support a shoe in unbound mode. Thus the use of a tangent plane, either the physically tangent plane or the abstractly tangent plane must recite a pedal state whereby the bindings have "minimal or no intersection" with the gauge plane in order not to disallow this equivalent of the present invention. Since this requirement contradicts the desired requirement of having "no" binding intersection with a physically tangent plane mentioned in this paragraph for defining equivalents of the present invention that have cage type shoe supporting surfaces, it becomes clear that neither claim 43, nor claim 48, considered by themselves, can define all foreseeable embodiments of the present invention patentably over the prior art, but taken together, they can. Only claim 30 considered by itself, covers all present and foreseeable embodiments of the present invention.

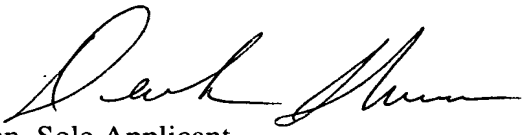
Claims 44-48 are dependent on claim 43, and are equivalent in scope to claims 31-36 which are dependent on claim 30.

Claims 50-54 are dependent on claim 49, and are equivalent in scope to claims 31-36 which are dependent on claim 30.

Conclusion

For the reasons given above, Applicant respectfully submits that the specification and all remaining claims in question are now in proper form, and that all claims now define patentability over the prior art. Therefore, Applicant submits that all claims of the application are now in condition for allowance, which action Applicant respectfully solicits. Furthermore, Applicant submits that claims 30, 43, and 49 are generic to the various alternative embodiments of the invention, and requests reinstatement of claim 4, with allowance made for suitable amendment to remain consistent with amended claim 30 for which it will be dependent.

Very Respectfully,



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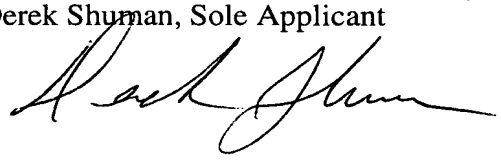

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